

**BY ORDER OF THE SECRETARY
OF THE AIR FORCE**

AIR FORCE INSTRUCTION 11-290

15 OCTOBER 2012



**AIR FORCE MATERIEL COMMAND
Supplement**

20 FEBRUARY 2014

Flying Operations

**COCKPIT/CREW RESOURCE
MANAGEMENT PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available for downloading or ordering on the e-Publishing website at www.e-Publishing.af.mil.

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: AF/A3O-AI

Certified by: AF/A3O
(Maj Gen James J. Jones)

Supersedes: AFI11-290, 11 April 2001

Pages: 20

(AFMC)

OPR: HQ AFMC/A3V

Certified by: HQ AFMC/A3V
(Col Michael R. Contratto)

Supersedes: AFI11-290_AFMCSUP,
25 June 2002

Pages: 9

This Instruction implements AFRPD 11-4, *Aviation Service*, and AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*. It establishes the USAF cockpit/crew resource management program and is applicable to all units assigned to or gained by major commands (MAJCOMs) and applies to commanders, operations supervisors, and aircrews assigned or attached to all flying activities of these commands. This publication applies to the Air Force Reserve (AFR) and the Air National Guard (ANG). This Instruction may be supplemented. Coordinate supplements with AF/A3O-AI prior to publication. Submit suggested improvements to this Instruction on AF Form 847, *Recommendation for Change of Publication*, through training channels, to AF/A3O-AI, afa3oai.workflow@pentagon.af.mil. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>.

(AFMC) AFI 11-290, 15 October 2012 , is supplemented as follows:

(AFMC) This supplement implements and extends the guidance of AFD 11-4, *Aviation Service*, and AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and supplements. It expands on the guidance provided in the AFI and applies to all AFMC organizations. This supplement does not apply to the Air National Guard or US Air Force Reserve units and members. If required, AFMC units may further supplement this command supplement. If supplemented, send a copy to HQ AFMC/A3V.

(AFMC) Submit suggested improvements to this instruction on AF Form 847, *Recommendation for Change of Publication*, through official channels, to HQ AFMC/A3V Workflow, afmc.a3v@us.af.mil. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with the Air Force Records Disposition Schedule (RDS).

(AFMC) This publication implements Air Force Policy Directive (AFPD) 33-3, *Information Management*. It provides guidance and procedures on creating, managing, and disseminating directive and nondirective publications and forms throughout the Air Force. It applies to individuals at all levels who prepare, manage, review, certify, approve, disseminate and/or use official Air Force publications and forms, including the Air Force Reserve and Air National Guard (ANG), except where noted otherwise. This AFI may be supplemented at any level, but all supplements that directly implement this publication must be routed to SAF/AII Policy Branch for coordination prior to certification and approval.

(AFMC) Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, Table 1.1 for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items.

(AFMC) Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS).

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Format is revised and procedural guidance is reduced throughout the AFI to place emphasis on MAJCOM/FOA/DRU program oversight. Program goals are updated ([paragraph 1.1](#)), program requirements are modified ([paragraph 2](#)), Steering Committee and Working Group information is updated ([paragraph 6](#) and [paragraph 7](#)), oversight responsibility is specified ([paragraph 8](#))

and waiver guidance is added (**paragraph 9**). Updates reflect administrative changes and prescribed format requirements.

(AFMC) This document has been substantially revised and must be completely reviewed. Major changes to format have occurred to match parent Air Force Instruction. No major changes to policy have been made to the supplement. Minor changes have been made to update AFMC defined crewmembers. Terminology/Acronyms have been updated to match AFMC operations. CRM Exercise has been added to numerous areas to provide clarity on training. Renumbering of attachments to accommodate for parent Air Force Instruction. Updates reflect administrative changes and prescribed format requirements.

Section A—CRM Program Description	3
1. General.	4
1. (AFMC) General.	4
2. Program Requirements.	4
3. CRM core curricula.	6
3. (AFMC) CRM core curriculum.	6
4. CRM Training Phases.	7
5. Supporting Information.	8
5. (AFMC) Supporting Information.	9
Section B—Program Management	9
6. The USAF CRM Steering Committee.	9
7. USAF CRM Working Group.	9
7. (AFMC) USAF CRM Working Group.	9
8. Oversight.	9
8. (AFMC) Oversight.	9
9. Waivers.	10
9. (AFMC) Waivers.	10
Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION	11
Attachment 2—(Added-AFMC) AFMC CORE CRM CURRICULUM	14
Attachment 3—(Added-AFMC) CRM TRAPS AND TOOLS	17
Attachment 4—(Added-AFMC) CRM BRIEFING/DEBRIEFING GUIDE	20

Section A—CRM Program Description

1. General. The Air Force Cockpit/Crew Resource Management (CRM) program provides crewmembers with performance-enhancing knowledge and skills directly applicable to their roles in the aerospace mission of the Air Force. CRM training is a key component of a combined effort to identify and manage threats to safe and effective mission operations. The CRM program begins with crewmembers' initial Air Force flying training and is continuously built upon throughout their operational careers. Training objectives will be tailored to the knowledge and skill level of the aircrew member. As the aircrew member becomes more proficient, CRM training should emphasize performance skills more than academic objectives. Lead commands define "crewmember" in terms of their own operational mission requirements.

1. (AFMC)General. AFMC defines crewmember, for the purpose of CRM, as all pilots, navigators, combat system operators, non-rated aircrew, flight surgeon, flight engineers, special mission aviators, loadmasters, and boom operators. Flight Operations Authority may designate other personnel (such as test conductors) as crewmembers for the purpose of this supplement.

1.1. The CRM program goals are:

1.1.1. Maximize operational effectiveness and combat capability.

1.1.2. Preserve personnel and material resources.

1.1.3. Ensure the safety of non-combatant civilians.

1.1.4. Facilitate mishap reduction by providing skills, processes, tools and techniques to aircrew members to effectively identify threats and mitigate errors in aviation operations.

1.2. CRM training will be designed and managed to accomplish the following objectives:

1.2.1. Develop aircrew skills in recognizing and responding to the conditions and/or threats that lead to aircrew error.

1.2.2. Develop aircrew proficiency in CRM skills to anticipate conditions and/or threats and minimize their impact in order to safely and effectively meet mission requirements.

2. Program Requirements. MAJCOMs, field operating agencies (FOAs) and HQ USAF direct reporting units (DRUs) are responsible for establishing and managing their respective programs in accordance with this Instruction. CRM programs are mandatory for aircrew members.

2.1. Lead Commands will publish guidance in AFI 11-2 mission design series (MDS) specific vol. 1 and vol. 2 AFIs (**Note:** guidance may also be published in a Ready Aircrew Program (RAP) tasking memo or similar product), regarding CRM requirements, currency, tracking, and evaluation, to include:

2.1.1. Establishing training frequency, required attendees, and method for tracking crewmember currencies.

2.1.1. (**AFMC**) For the purpose of AFMC, initial CRM training is defined as CRM training that was either conducted as part of initial flight training (i.e., ATC/AETC), or the first academic CRM training that a crewmember received. If units receive crewmembers that have not received any type of initial CRM training, they will require CRM academics with emphasis on initial CRM skills and concepts. CRM academic training will be accomplished every three years. Continuation training/CRM exercise may include either ground training or simulator/flying training. Aircrews and those aircrews designated by the Flight Operations Authority (IAW para 1) requiring CRM will

accomplish a minimum of one CRM continuation/CRM exercise training event every 12 months. AFMC crewmembers attached to another MAJCOM flying unit will maintain that MAJCOM's CRM currency/training requirements and are authorized to update their CRM currency/training with AFMC upon completion of training. CRM academic and continuation/CRM exercise training events will be documented and tracked through ARMS/COOL. For small flying organizations (with less than four primary crewmembers) which do not utilize ARMS/COOL. CRM events may be tracked in training folders.

2.1.2. Use of AF Form 4031, *CRM Skills Criteria Training/Evaluation Form*, or MAJCOM/FOA/DRU- approved substitute, to establish the skills training/evaluation criteria.

2.1.2. (AFMC) CRM skills will be evaluated during all initial and recurring flight evaluations IAW applicable AFI 11-202 series publications. Unit program managers will develop procedures to ensure that flight evaluations are trended in which CRM skills received a "Q-" or "U." Units will use AF Form 4031, *CRM Skills Criteria Training/Evaluation*, for CRM skills training and course evaluation. If used, unit CRM program managers will compile results of the form for trend analysis and provide feedback to the contractor/training program. Disposition of AF Form 4031 will be IAW Records Disposition Schedule.

2.1.3. If using a contract vehicle, provide a uniform CRM program via a contract vehicle that covers all applicable units to include units gained from AFRC or ANG.

2.1.3. (AFMC) The unit Flight Operations Authority will determine if CRM training completed in a previous command satisfies the unit's requirements. In this case, non-AFMC CRM courses may count as fulfilling the requirements of AFI 11-290 and this supplement and will be documented according to the applicable AFI 11-202/11-2FT series publications. CRM training completed during simulator refresher training satisfies the requirement of this supplement.

2.2. Each MAJCOM, FOA and DRU CRM training program must:

2.2. (AFMC) The AFMC-sponsored CRM training is provided by contractor(s) or unit CRM program managers who have completed AFMC approved facilitator training, and targets the unique AFMC flight test mission. The training focuses on crew management with emphasis on the interaction between flight crews and their supporting test teams.

2.2.1. Provide training to develop and improve CRM knowledge and skills based on [paragraph 3](#) and AF Form 4031. MAJCOM/FOA/DRU- approved substitute may be used in lieu of AF Form 4031.

2.2.2. Be updated annually to incorporate: "real-world" operational experiences, sanitized mishap data, research data, critiques, and flight evaluation trends.

2.2.3. Identify the process for gathering, analyzing and incorporating trend data from MAJCOMs into existing training and evaluation programs.

2.2.4. MAJCOM, FOA and DRU CRM managers will ensure continuity of course content with AETC's introductory courses.

2.2.5. Ensure that data collected and/or generated through CRM and trend gathering processes is not used for monitoring aircrew performance to initiate punitive or adverse action.

2.2.6. Provide proportional funding as necessary to support the lead MAJCOM CRM program.

2.3. CRM skills will:

2.3.1. Be integrated into flight briefings and debriefings.

2.3.1. (AFMC) CRM will be briefed prior to and following all flights. Consult Attachment's 2 and 3 for topics that may be included as part of the pre and post mission briefing.

2.3.2. Be integrated into training syllabi.

2.3.2. (AFMC) CRM skills and behaviors will be included in all initial, requalification, mission and upgrade training syllabi as outlined in the applicable AFI 11-202 series publications.

2.3.3. Be evaluated during initial qualification and recurring evaluations.

3. CRM core curricula. Core curricula will include the following knowledge and skill sets:

3. (AFMC) CRM core curriculum. Attachment 2 (Added) outlines the AFMC core curriculum. It will be included as part of the HQ AFMC/A3V approved CRM continuation/exercise and academic CRM training plan.

3.1. Communication. Includes knowledge of common errors, cultural influences, and barriers (i.e., rank, age, experience, position, etc.). Skills will encompass listening, feedback, precision and efficiency of communication with all members and agencies (i.e., Crewmembers, Wingmen, Weather, ATC, Intelligence, etc.).

3.2. Crew/Flight Coordination. Knowledge and skills required within (internal) and outside the crew/flight members (external) for mission coordination, flight/mission integrity contracts, team-building, leadership, command authority, responsibility, behavioral styles, assertiveness, persistence, conflict resolution, hazardous attitudes, legitimate avenues/methods of dissent, and solution driven statements.

3.3. Mission Analysis. Includes pre-mission analysis and planning, briefing, ongoing mission evaluation, and post mission debrief. Analysis instruction will include specific Threat and Error Management tools and techniques. Debrief instruction will include aircrew responses and outcomes to threats and errors.

3.4. Risk Management (RM)/Decision Making. Includes risk assessment, the risk management processes (Deliberate, Real Time RM)/tools, breakdowns in judgment and flight discipline, problem-solving, evaluation of hazards, and control measures.

3.5. Situational Awareness. Includes knowledge and skill objectives for identifying errors, preventing the loss of situational awareness, recognizing the loss of situational awareness, and techniques for recovering from the loss of situational awareness.

3.6. Task Management. Includes establishing priorities, overload, under-load, complacency, management of automation, available resources, checklist discipline, and standard operating procedures.

4. CRM Training Phases. Each phase of training should prepare individuals to apply the knowledge and skills acquired in their specialty and motivate participants for the next phase of training.

4.1. Introductory or Awareness Training. Normally conducted in a formal training environment by AETC. Trainees learn standard CRM terminology and core concepts. Lesson plans will include a description of the building block approach to CRM training the individual will participate in throughout their operational career.

4.2. Formal Training Unit (FTU)/Combat Crew Training School (CCTS) CRM Training. Students learn to apply knowledge and skills related to their assigned aircraft. Academic training is complemented during aircraft/simulator training. Emphasis should be placed on preflight planning, briefing, in-flight utilization, and debrief techniques for CRM. This should include a brief review of CRM core concepts identified in **paragraph 3**. Mission-Oriented Simulator Training (MOST) sessions or other simulated or actual operational scenarios may be used as an integral part of CRM training. Evaluate students for technical expertise, as well as the skills based on the six core concepts. If aircrew training devices are not available, students should participate in group problem-solving exercises.

4.3. Mission-Specific Continuation Training. MAJCOMs, FOAs and DRUs are responsible for CRM continuation training. This training will reinforce the aircrew's CRM academic knowledge and refocus on skills to accomplish the mission. It also helps aircrews identify and respond to the conditions and/or threats that lead to error.

4.3. (**AFMC**) CRM Continuation training/exercise may be conducted in the simulator, aircraft or in an academic environment. This training will include the normal complement of applicable air and ground crew associated with each unit's specific mission. Training will be accomplished using the following guidelines:

4.3.1. Emphasize CRM skills in the mission qualification and continuation training programs so they become inseparable parts of operational practices.

4.3.2. Frequency for recurring CRM continuation training is defined in the AFI 11-2 MDS specific volumes 1, a RAP tasking memorandum, or a similar product. Lead commands are responsible for providing guidance to standardize CRM MDS specific training policy and requirements. All aircrew require Mission-Specific Continuation Training. Separating training by crew position should be avoided. However, it is not mandatory to conduct this training with a complete aircrew.

4.3.3. (**Added-AFMC**) CRM scenarios will be briefed prior to the mission following guidance contained in this instruction and developed by the unit.

4.3.4. (**Added-AFMC**) For multiplace aircraft with mission/operational support crewmembers assigned, emphasis should be placed on enhancing interaction with the total crew complement during simulated aircraft emergencies (i.e., smoke and fume elimination, egress, etc.).

4.3.5. **(Added-AFMC)** For dual placed aircraft, emphasis should be placed on pilot and WSO/FTE interaction during simulated inflight emergencies.

4.3.6. **(Added-AFMC)** For single seat aircraft, emphasis should be placed on pilot and ground control/test operations interaction during simulated inflight emergencies.

4.3.7. **(Added-AFMC)** Crewmembers may credit an actual aircraft emergency as an annual CRM continuation/exercise training event provided that during the debrief crew performance, interaction, CRM skills, and feedback to improve crewmember skills, are thoroughly critiqued and reviewed. For multiplace aircraft, the entire crew must be present during the debriefing.

4.3.8. **(Added-AFMC)** During mission debriefing, critique the CRM scenario, crew/pilot performance and interaction, and provide feedback to improve individual and team performance.

4.4. Flight Instructor Training. All flight and simulator instructors will complete instructor specific CRM training. This training will normally be accomplished as part of instructor upgrade program. Courseware must build upon the previous blocks of training, both to reacquaint candidates with CRM fundamentals and to maintain continuity of terminology and techniques. MAJCOMs, FOAs and DRUs develop courseware related to instructing and evaluating key skills that apply to command and aircraft-specific missions. Personnel may conduct this training at operational units, flying training units, or a combination, as required. Training will include, but is not limited to, proper use of AF Form 4031 (or approved substitute).

4.4. **(AFMC)** Flight Instructor Training. All crewmembers upgrading to instructor qualification will be trained in CRM as part of their instructor training syllabus IAW applicable AFI 11-202/11-2FT series publications.

4.4.1. CRM instructor or evaluator training will be included into instructor upgrade programs.

4.4.2. CRM instructors and evaluators must be highly proficient in all CRM skills and be experts in the recognition, observation, and reinforcement of these skills as they are applied by aircrew members in a mission environment.

4.5. Facilitator Training. Formal CRM academic curricula must be delivered by a trained CRM facilitator. Facilitator training will include training in running exercises, structured crew observation, and effective academic feedback.

4.5. **(AFMC)** Facilitator Training. Unit CRM program managers will attend (as training allocation slots become available) an HQ AFMC/A3V approved facilitator course prior to instructing CRM continuation or academic training but no later than one year after assuming duties as the unit CRM program manager. Units who are awaiting training allocation slots may continue to instruct, using their locally developed courseware, until completing HQ AFMC/A3V approved facilitators course. Units will ensure personnel selected to attend this course will have one year retainability as the unit program manager upon graduation. This provision does not apply to those units who receive their CRM training from a contractor.

5. Supporting Information. HQ Air Force Safety Center, MAJCOM, FOA, and DRU safety staffs will screen mishap reports for human performance errors. This safety information should

be available for use at all phases of CRM training, either as part of simulator scenarios or for CRM case studies. Sanitized “Limited Use” information will be provided to CRM program managers in a timely manner by command/unit safety staff(s) according to AFI 91-204, *Safety and Investigation Reports*.

5. (AFMC) Supporting Information. HQ AFMC/SEF will forward to HQ AFMC/A3V all safety mishap reports in which human performance was a contributing factor(s) to the mishap. All levels within the command will ensure the provisions of AFI 91-204, *Safety Investigation and Reports*, are complied with in regards to releasing privileged information. The AFMC CRM program manager will forward these sanitized reports to AFMC flying organization CRM program managers for incorporation into their local academic and continuation training program.

Section B—Program Management

6. The USAF CRM Steering Committee. The Steering Committee standardizes CRM program requirements and terminology.

6.1. Steering Committee Membership:

6.1.1. AF/A3O-AI, Chair.

6.1.2. AF/A3O-AC

6.1.3. AF/A3O-AM

6.1.4. AF/A3O-AS

7. USAF CRM Working Group. The CRM Working Group will consist of members of the Steering Committee, AFSEC/SE representative, plus MAJCOM/FOA/DRU A3 (or equivalent) representatives and additional personnel as designated by the Steering Committee. The working group reviews program execution and policy issues and will meet in conjunction with Aircrew Management Executive Council (AMEC) meetings.

7. (AFMC) USAF CRM Working Group. For AFMC/A3 the Chief, Stan/Eval Division, HQ AFMC/A3V will be the MAJCOM representative.

8. Oversight. Oversight of Air Force CRM programs will rest within the MAJCOM, FOA and DRU operations directorates. MAJCOM, FOA and DRU safety and surgeon general directorates will act as advisors and respective subject matter experts to the operations directorates for providing input to course content and delivery.

8. (AFMC) Oversight. Operational control of the CRM Program is delegated to Chief, Stan/Eval Division, HQ AFMC/A3V.

8.1. Each MAJCOM, FOA and DRU will appoint a CRM program manager within the operations (or equivalent) function. The program manager is responsible for:

8.1.1. Ensuring Lead Command’s AFI 11-2 MDS specific vol. 1 and vol. 2 publications (or RAP tasking memo/similar product) provide CRM policy guidance.

8.1.2. Implementing Lead Command CRM policy guidance.

8.1.3. Ensuring each applicable CRM training phase (paragraph 4) is implemented and evaluated.

8.1.4. The forwarding of AF Form 4031 (or approved substitute) trend data to CRM Instructors/Facilitators.

8.1.5. Ensuring a system is in place to collect performance data (i.e. Stan/Eval trends (Skills criteria), sanitized mishap data, Hazardous Air Traffic Reports (HATR), and Inspector General reports), and send to CRM instructors and facilitators.

8.1.6. Evaluating contractor implementation of CRM program objectives. Where discrepancies are identified, initiate corrective actions.

8.1.7. Ensuring Quality Assurance Representatives (QARs) and IGs have current evaluation guidance to evaluate CRM program objectives. Where discrepancies are identified, initiate corrective actions.

8.1.8. Providing feedback to CRM Working Group regarding program status covering: Training Continuum, Standardization, and Research and Development needs.

8.1.9. Interacting with MAJCOM, FOA or DRU CRM advisors (Safety, Aerospace Physiology, etc.) ensuring CRM training is effective and minimizes redundancies with other programs given by Safety, Aerospace Physiology, etc.

8.2. Command Steering Committees. MAJCOMs, FOAs and DRUs may establish command steering committees to identify the most effective methods for delivering and administering CRM programs.

9. Waivers.

9. (AFMC) Waivers. Submit all waivers through official channels, to HQ AFMC/A3V Workflow, ·

9.1. AF/A3O is the waiver authority for provisions of this Instruction. Request waivers through applicable channels to MAJCOM/A3 (or equivalent). As applicable, MAJCOM/A3s will forward requests to AF/A3O, with an info copy to AF/A3O-AI.

9.2. Waiver authority for supplemental guidance will be as specified in the supplement and approved through higher level coordination authority.

9.3. Waiver authority for MAJCOM/DRU/FOA CRM guidance is the MAJCOM/FOA/DRU A3 or equivalent.

BURTON M. FIELD, Lt Gen, USAF
DCS, Operations, Plans and Requirements

(AFMC)

WILLIAM J. THORNTON, Brigadier General, USAF
Director of Air, Space and Information Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 11-4, *Aviation Service*, 1 Sep 2004

AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 Jan 2012

AFI 11-403, *Air Force Aerospace Physiological Training Program*, 20 Feb 2001

(Added-AFMC) AFMAN 33-363, *Management of Record*, 1 March 2008

AFI 91-204, *Safety Investigations and Reports*, 24 Sep 2008

Prescribed Form

AF Form 4031, *CRM Skills Criteria Training/Evaluation Form* (MAJCOM/FOA/DRU-approved substitute may be used in lieu of AF Form 4031.)

Adopted Form

AF Form 847, *Recommendation for Change of Publication*.

Abbreviations and Acronyms

AMEC—Aircrew Management Executive Council

CCTS—Combat Crew Training School

CRM—Cockpit/Crew Resource Management

DRU—Direct Reporting Unit

FOA—Field Operating Agency

HATR—Hazardous Air Traffic Report

MAJCOM—Major Command

MDS—Mission Design Series

MOST—Mission-Oriented Simulator Training

RAP—Ready Aircrew Program

QAR—Quality Assurance Representative

RM—Risk Management

SA—Situational Awareness

TEM—Threat and Error Management

Terms

Cockpit/Crew Resource Management (CRM)—The effective use of all available resources-- people, weapon systems, facilities, and equipment, and environment -- by individuals or crews to safely and efficiently accomplish an assigned mission or task. The term "CRM" will be used to

refer to the training program, objectives, and key skills directed to this end. MAJCOMs may implement their programs as either "cockpit" or "crew" resource management based on their respective missions.

Communication—The act of sharing information with others to cause some kind of action: to direct, to inform, to question, or to persuade.

Coordination—As used in this Instruction the act of working with all the members of the crew/flight to accomplish the tasks of the mission.

Crew—As used in this Instruction, any collection of Air Force personnel who routinely work together to accomplish an Air Force mission. For example, an air task order-designated team of fighter pilots and airborne battle managers prosecuting an interdiction mission uses "crew" skills to maximize its effectiveness.

Decision Making—The ability to choose a course of action using logical and sound judgment based on available information.

Errors—Actions or inactions that lead to deviations from organizational or flight crew intentions or expectations. Unmanaged and/or mismanaged errors can lead to undesired aircraft states. Errors in the operational context tend to reduce the margins of safety and increase the probability of adverse events.

Flight Discipline—The judgment and actions exercised by AF personnel to adhere to the spirit, intent, and written word of governing guidelines in the presence of temptation to do otherwise, while executing the Air Force flying mission. It also includes the prioritization of tasks based on crew responsibilities to ensure safe mission accomplishment while demonstrating the highest degree of integrity in the performance of flight duties.

Flight Integrity—Utilizing all the members of a flying package to accomplish the mission at hand.

Mission Debrief—Reviewing and discussing mission accomplishment looking at what was achieved, what barriers were encountered and how the mission could be accomplished better next time.

Mission-Oriented Simulator Training (MOST)—Training presented as a part of a CRM program in a realistic, operationally-based simulator environment in real time.

Mission Planning—Taking all of the information for a mission and developing short term, long term, and contingency plans to coordinate, allocate, and monitor crew/flight and aircraft resources. Effective planning leads to flight conduct that removes uncertainty, increases mission effectiveness and enhances safety.

Risk Management—The systematic process of identifying hazards, assessing risk, making control decisions, implementing control decisions and supervising/reviewing the activity for effectiveness for both on- and off-duty missions/activities.

Situational Awareness (SA)—In flying, this refers to a aircrew member's continuous perception of self and aircraft in relation to the dynamic environment of flight, threats, and mission, and the ability to forecast, then execute, tasks based upon that perception.

Skills Criteria—Defined skills used as the basis for operational training and evaluation. The characteristics of the skill are that they are easily identifiable and offer consistency in grading evaluation.

Task Management—The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environment changes.

Threat—An event or error that occurs outside the influence of the aircrew (i.e., it was not caused by the crew), increases the operational complexity of a flight, and requires crew attention and management if safety margins are to be maintained.

Threat and Error Management—Crews and flight members proactively using a combination of CRM skills and automation to address internal and external threats to avoid, trap or mitigate their impacts on mission safety and effectiveness.

Attachment 2 (Added-AFMC)

AFMC CORE CRM CURRICULUM

A2.1. (AFMC) AFMC Core CRM Curriculum. The six fundamental areas are shown below with subareas to provide all facilitators, instructors, and evaluators with common ground from which to reinforce CRM principles. This attachment can also be used to develop local training syllabus or developing CRM scenarios. It also provides a baseline from which to evaluate performance.

A2.2. (AFMC) Situational Awareness

A2.2.1. **(AFMC) Communication:** Crewmembers check in with each other during times of high and low workload to maintain situational awareness and to remain alert.

A2.2.2. **(AFMC) Automated Systems:** The crew establishes guidelines for the operation of automated systems (i.e., when they will disable systems and when they must verbalize and acknowledge programming actions).

A2.2.3. **(AFMC) Optimal Use:** When programming demands could reduce situational awareness and create work overloads, the crew reduces the level of automation or disengages automated systems.

A2.2.4. **(AFMC) Divisions of Duties:** The crew outlines the duties of the pilot flying and the pilot not flying with regard to automated systems (i.e., data entry and cross-checking).

A2.2.5. **(AFMC) Status Updates:** Crewmembers periodically review and verify the status of aircraft automated systems.

A2.2.6. **(AFMC) Coordination:** Crewmembers verbalize and acknowledge entries and changes to automated systems parameters.

A2.2.7. **(AFMC) Programming:** The crew plans for sufficient time for programming of flight management computer prior to maneuvers.

A2.3. (AFMC) Crew Coordination/Flight Integrity

A2.3.1. **(AFMC) Team Building:** The crew establishes guidelines for coordination between all crew positions and ground or flight test personnel. The entire crew participates in briefings as a team, when appropriate.

A2.3.2. **(AFMC) Crew Environment:** Crewmembers establish and maintain a team concept and an environment for open communication (i.e., crewmembers listen with patience, do not interrupt or “talkover,” do not rush through briefings, make eye contact when appropriate).

A2.3.3. **(AFMC) Operational Situation:** The group climate matches the operational situation (i.e., presence or lack of social conversation). The crew also ensures these nonoperational factors do not interfere with necessary tasks.

A2.3.4. **(AFMC) Effective Inquiry:** Crewmembers openly ask questions regarding crew actions and decisions.

A2.3.5. **(AFMC) Effective Advocacy and Assertion:** Crewmembers speak up and state their information with appropriate persistence, until there is some clear resolution and decision.

A2.3.6. (AFMC) Conflict Resolution: When conflicts arise, the crews focus remains on the problem or situation at hand. Crewmembers listen actively to ideas and opinions and admit mistakes when wrong.

A2.3.7. (AFMC) Communication:

A2.3.7.1. (AFMC) Crew Briefings: Operationally thorough, interesting, and address crew coordination while planning for potential problems. The crew sets expectations on how to handle deviations from normal operations.

A2.3.7.2. (AFMC) Performance Feedback: Crewmembers provide positive and negative performance feedback at appropriate times and create a positive learning experience for the whole crew - feedback is specific, objective, based on observable behavior, and constructive.

A2.3.7.3. (AFMC) Feedback Acceptance: Crewmembers accept performance feedback objectively and nondefensively.

A2.3.8. (AFMC) Workload Communication: Crewmembers clearly communicate workload and task distribution and receive acknowledgment from other crewmembers. The crew allots adequate time to complete tasks.

A2.4. (AFMC) Risk Management and Decision Making

A2.4.1. (AFMC) Aircraft Commander/Flight Lead Leadership: The aircraft commander coordinates activities to establish a proper balance between command authority and crewmember participation while acting decisively when the situation requires.

A2.4.2. (AFMC) Crew Participation: Crewmembers clearly state operational decisions to other crewmembers and receive acknowledgment. The crew includes all crewmembers and others when appropriate.

A2.4.3. (AFMC) Crew Preparation: The crew prepares for expected and/or contingency situations including approaches, weather, etc.

A2.5. (AFMC) Task Management

A2.5.1. (AFMC) Task Prioritization: The crew prioritizes secondary operational tasks (e.g., completing required test points versus completing training events) to retain sufficient resources to deal effectively with primary flight duties.

A2.5.2. (AFMC) Fatigue: During long duty periods, crewmembers are proactive in remaining alert and plan and use fatigue countermeasures.

A2.5.3. (AFMC) Self-Imposed Stress: The crew's actions do not create self-imposed stress and additional workload (e.g., late descent due to lack of situational awareness/planning).

A2.5.4. (AFMC) Overload Recognition: Crewmembers recognize and report when their duties or the duties they observe others performing cause an overload.

A2.5.5. (AFMC) Stress Level: The crew remains calm under stress.

A2.6. (AFMC) Mission Planning/Debrief

A2.6.1. (AFMC) Mission Planning: Did the planned mission match the flown mission? If not, what actions could the crew have taken to accomplish the planned mission?

A2.6.2. (AFMC) Debrief: The aircraft commander/flight lead should discuss, with the crewmembers' participation, the flight history. Emphasis should be placed on steps to enhance crew and mission effectiveness, and lessons learned.

A2.6.3. (AFMC) Communication: Test conductors, mission commanders, or designated representative will be the single point of contact with the aircrew for the mission, planning and coordination.

Attachment 3 (Added-AFMC)

CRM TRAPS AND TOOLS

A3.1. (AFMC) This attachment was developed to highlight CRM areas that crews may want to consider when briefing CRM: prior to flight and developing or evaluating CRM training scenarios. Units are authorized to reproduce this attachment and place it in local flight briefing guides.

A3.2. (AFMC) Traps: Accidents have been caused by inadequate performance of people who had the capacity to perform effectively yet failed to do so. This ineffective behavior results from a combination of personality traits and attitudes. These “traps” become BARRIERS to effective teamwork. They reveal themselves on every flight; they are always there. We must constantly be aware of them and find ways to prevent them from not allowing us to achieve safe and efficient flight operations.

A3.3. (AFMC) Excessive Professional Courtesy: In general, we are hesitant to call attention to deficient performance in others, particularly if they are senior to us. Thus, even when one crewmember does address our performance, which is outside of established parameters, it is typically done with very little emphasis. For example, the copilot will usually inform the pilot that he or she is “a little fast” or “a little slow” no matter how far off he or she is.

A3.4. (AFMC) Halo Effect: The Halo Effect comes into play when an individual with a significant amount of experience on one type of aircraft is transitioning to a new type of aircraft. Typically that pilot or crewmember is given a very accelerated checkout on the new aircraft, because if they have so much experience on “X,” they can certainly handle “Y.” The “Halo” of expertise and the rush to get the person on line blinds everyone to the major differences between the aircraft and the need for a more extensive training program.

A3.5. (AFMC) The Passenger Syndrome: This is sometimes call the “Copilot Syndrome” and is based on a comforting premise that one or more other crewmembers have the situation under control and are looking out for your best interest. The Halo Effect can lead to Passenger Syndrome.

A3.6. (AFMC) Hidden Agenda: Sometimes a crewmember may be making suggestions or decisions on information or desires the rest of the crew are not aware of, such as a strong desire to make it back to base due to important plans. We need to communicate honestly all motives involved so that decisions can be made rationally and based on the facts rather than on wishful thinking.

A3.7. (AFMC) Accommodation Syndrome: This is a theory that explains a decreasing human arousal to a stimulus because of repetition combined with the passage of time. If a crewmember is subject to stress repeatedly during a mission, the theory holds that he or she would be less responsive to stress later in the mission. For example, a stressful event in any mission is the final descent and landing; and the landing phase is one of those where many accidents occur. The Accommodation Syndrome could cause a letdown during that high accident exposure time.

A3.8. (AFMC) Strength Of An Idea: Strength of an idea can be defined as an unconscious attempt to make available evidence fit a preconceived situation. It has been observed that once a person or group of people get a certain idea in their head(s), it can be difficult or impossible for

them to alter that idea no matter how much conflicting information is received. In a highly stressful situation it becomes even more important that we not allow our attention to focus or become channelized on only one area.

A3.9. (AFMC) Sudden Loss Of Judgement (SLOJ): This is a condition in which an individual's decision making abilities become impaired. Even the most capable and experienced crews are susceptible to this condition. It's generally precipitated by a real or perceived pressure to perform or by workload/stress related issues.

A3.10. (AFMC) Hazardous Attitudes: There are six hazardous attitudes which can impede our good judgment and decision-making abilities and often lead to Sudden Loss of Judgement. These attitudes may be an inherent part of our personality, or may be a short term factor due to a particular situation. The six hazardous attitudes are:

A3.10.1. (AFMC) Anti-Authority

A3.10.2. (AFMC) Resignation

A3.10.3. (AFMC) Invulnerability

A3.10.4. (AFMC) Macho

A3.10.5. (AFMC) Impassivity

A3.10.6. (AFMC) Get there-itis

A3.11. (AFMC) Error Chain: While accident reports will mention an event that was the ultimate cause of the mishap, there are always "contributing causes." This series of errors, poor judgment, and poor decisions led up to the final and fatal cause. Our task as professional aviators is to recognize the emerging "Error Chain" and "Break the Chain."

A3.12. (AFMC) Tools - Performance techniques and procedures can be developed, trained and used to avoid and defeat TRAPS. These practical TOOLS must be taken to the aircraft and used on every flight.

A3.13. (AFMC) Standard Cockpit Operating PROCEDURES (SCOP): These procedures provide a predictable environment for developing and reinforcing Crew Resource Management skills. By SCOP we mean a written set of procedures which go beyond the existing checklists, detailing:

A3.13.1. (AFMC) Who flies the aircraft

A3.13.2. (AFMC) Who briefs the emergency

A3.13.3. (AFMC) Who makes the call outs and when

A3.13.4. (AFMC) Who does the miscellaneous procedures

A3.14. (AFMC) The Assertive Statement: This is a nonthreatening method by which a crewmember can directly communicate his or her concerns about a situation with which they are uncomfortable. The five step process is: get the attention of the individual, state the concern, state the problem, offer a solution and then obtain agreement.

A3.15. (AFMC) Time Out: An assertive statement which provides a clear warning sign of a deviation or loss of situational awareness and provides an opportunity to break the "Error Chain" before a mishap occurs. It is designed to provide each crewmember the opportunity to voice

inputs relative to the stated concern, which will improve the aircraft commander's decision quality.

A3.16. (AFMC) Two Challenge Rule: This rule provides for automatic assumption of duties from any crewmember who fails to respond to two consecutive challenges. This overcomes our natural tendency to believe the pilot flying must know what he or she is doing, even as they depart from established parameters.

A3.17. (AFMC) Sterile Cockpit: This requires "business only" discussions during periods of flight. The policy can happen when passing specific altitudes or upon completion of checklists, whichever fits your particular mission.

A3.18. (AFMC) QPIDR: This is an acronym for a decision making model. The letters represent Question, Propose Ideas, Decide, Review. This model is also a synergy formula. Synergy will result if the crew will follow the model, because they are encouraged to participate in and make decisions.

A3.19. (AFMC) AESOP: Another acronym that allows aircrew to identify all risks prior to and during the flight. The five risk elements, which affect flight crew performance, are Aircraft, Environment, Situation, Operational, and Personnel. Reviewing these can be a very effective mind-jogger to be sure that important (though less obvious) factors are not inadvertently overlooked.

A3.20. (AFMC) Antidotes For Hazardous Attitudes:

A3.20.1. (AFMC) "Follow the rules; they're usually right."

A3.20.2. (AFMC) "Not so fast! Think first."

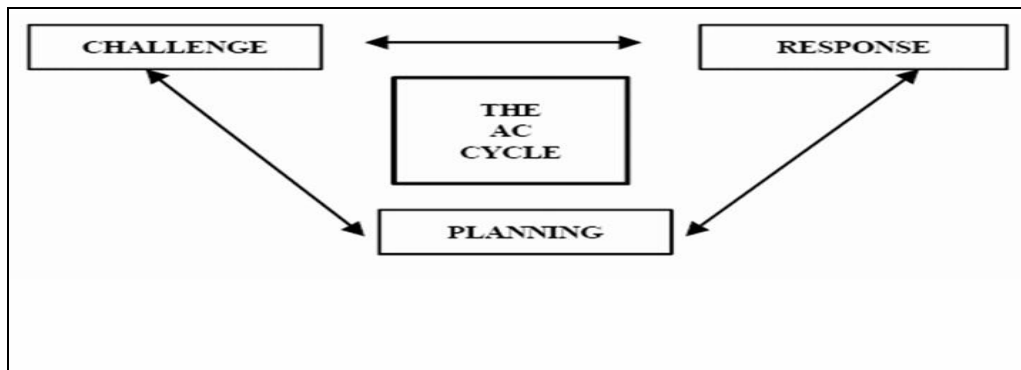
A3.20.3. (AFMC) "It could happen to me", "Taking a chance is foolish."

A3.20.4. (AFMC) "I'm not helpless, I can make a difference."

A3.20.5. (AFMC) "It's better to get there late than not at all."

A3.21. (AFMC) Aircrew Coordination (AC) Cycle: The AC Cycle is a useful tool that can be applied throughout the flight. It is systematically organized, practical, and a very effective operational approach for coping with challenges as an integrated flight crew.

Figure A3.1. AC Cycle



Attachment 4 (Added-AFMC)

CRM BRIEFING/DEBRIEFING GUIDE

A4.1. (AFMC) Use this attachment as a guide for evaluating how well you or members of your crew/test team interacted during missions. Identify strengths or weaknesses that you or members of your crew/test team can build on with the focus on improving your CRM skills. Units are authorized to reproduce this attachment and place it in local flight briefing guides.

Table A4.1. CRM Briefing/Debriefing Guide

Situational Awareness:		
Anticipates, monitors, prevents loss, recognizes own/others loss, regains SA	Vs	Disoriented, confused, lost fixated
Crew Coordination/Flight Integrity:		
Leads, identifies roles/expectations, sets tone, respects, encourages, assertive	Vs	Judges, ridicules, over reacts, ignores, imposes, accepts error
Communication:		
Clear, concise, listens, interprets, efficient, gets/gives feedback	Vs	Interrupts, withholds, discounts, ambiguous, mumbles
Risk Management/Decision Making:		
Identifies/assesses problem, explores solutions, makes appropriate decision involves and informs crew	Vs	Avoids, delays, vacillates, argues, fails to consider consequences of
Task Management:		
Prioritizes, assign tasks, creates time, plans, delegates, checklist discipline	Vs	Rushed, overloaded, complacent
Mission Planning/Debrief:		
Objective, thorough feedback, nonthreatening, recaps key points solicits inputs, provides corrective actions	Vs	Rushed, incomplete, vague, lectures, blames, ignores